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Satellite remote sensing in agriculture and food security assessment

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Abstract

NASA provides daily satellite remote sensing observations on a wide variety of environmental parameters at the global scale, including rainfall, temperature, vegetation health, ocean productivity and soil moisture conditions. Many organizations and individuals use this data to better understand the Earth system using models and diagnose the impact of climate on agricultural productivity. Weather related extreme events trigger food insecurity by reducing the supply of food and incomes of households working in the agriculture sector. Models and other ecosystem-based assessments can be used to inform decisions regarding food security and human health outcomes of changes in access to food. In this talk, I provide a description of the various monitoring products that have been developed by the US Agency for International Development and World Food Program's systems to monitor food production in food insecure regions, along with graphics and explanations as to how the products are used. Information on local food market prices and food affordability, nutrition outcomes, school attendance, the use of safety nets and other ancillary data are brought together with remote sensing information to inform food security. Satellite data is increasingly used to assess the amount of food grown globally, particularly in a new system entitled 'Global Agriculture Geo-monitoring Initiative (GEOGLAM). The system seeks to harmonize production assessments across nations and regions using satellite data to ensure a comprehensive and transparent assessment of how much food will be available for sale in international markets every month. As the climate changes, improved integration of social and economic food security indicators with climate observations from satellites will become increasingly important to ensure food security for all.

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Keywords: remote sensing; agriculture; food security; climate change

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